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ABSTRACT

This practicum report describes development, implementation, and evaluation of a program which used an augmentative and alternative communication system with six nonverbal preschool children with developmental disabilities attending a special school. An extensive review of the literature on augmentative and alternative communication systems was conducted. A communication system was then developed which utilized communication boards and picture communication symbols, reinforced by use of the symbols throughout the classroom environment. Comparison of data collection sheets at baseline and after 12 weeks of program implementation found that only 1 of the 4 program objectives, ability to follow a picture schedule, was completely met, but improvement in communication was seen in all areas tested. Appendices include data collection sheets and illustrations of sample communication boards. (Contains 21 references.) (DB)

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USING AUGMENTATIVE AND ALTERNATIVE COMMUNICATION TO IMPROVE COMMUNICATION FOR PRESCHOOL HANDICAPPED CHILDREN

by

Lora Kaiser

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A Practicum Report

Submitted to the Faculty of the Abraham S. Fischler Center for the Advancement of Education of Nova Southeastern University in partial fulfillment of the requirements for the degree of Master of Science

The abstract of this report may be placed in a National Database System for reference.

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Abstract

Using Augmentative and Alternative Communication to Improve Communication for Preschool Handicapped Children.
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This program describes an alternative system for communication with handicapped children. The program implemented was an augmentative and alternative communication system that enabled the targeted preschoolers to communicate with the people around them. Strategies included the use of picture symbols to communicate and participate within the classroom setting. Levels of success were measured by a teacher made data collection sheets, used both as a pre and posttest. Only one of the program objectives was met, but improvement in communication was seen in all areas tested. Appendices include data collection sheets and sample communication boards.

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Authorship Statement

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Practicum Title Using Augmentative and Alternative Communication To Improve Communication for Preschool Handicapped Children

Student's Name Lora Kaiser

Project Site ARC Broward Date 11/3/95

Observer's Name Debbie Larner Debbie Larner
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Observer's position Coordinator of Children Services Phone # 746-9400

Observer's comment on impact of the project (handwritten):

Lora's project has had a significantly positive impact on not only her classroom curriculum but also on the entire preschool curriculum. Because of the expertize she has acquired and the materials she has created other teachers are able to access these in order to implement the same program in their classrooms. In addition and most important, the children in Lora's classroom have very much benefited from the program. Their ability to communicate their wants and needs has improved dramatically and the aided language stimulation has facilitated the increase in their verbalizations. Lora has given the preschool a very much needed program.

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CHAPTER I

Purpose

The setting for this practicum report was a private preschool that serves a wide range of children with developmental disabilities, ages birth to five years. Some of the disabilities included: cerebral palsy, visual impairment, physical impairment, cleft palate, Down's Syndrome, at-risk children, and other types of mental and physical handicaps. The school was located in a suburb of a large metropolitan community. Demographically, the students came from all over the county. The children were brought to the school by bus or by their parents. The children were from every economic group.

The school employed nine teachers and 18 assistants. Each classroom consisted of one teacher and two teacher assistants. Two educational supervisors divided the nine classrooms and instructed and managed the teachers and assistants within their classroom. One Preschool Coordinator was also employed by the school. This person facilitated all activities within the preschool setting and served as a liaison to the school board and management of the preschool. Many

other office personnel were employed for management and accounting purposes.

The student population consisted of 13 children. Of the sample, 78% were white, 15% afro-american, and 7% hispanic. The class was 38% female and 61% male. The children ranged in age from 21 months to 38 months. The functioning cognitive levels of the children were between 13 months to 30 months. Seven of the children were nonambulatory and six could walk. All thirteen of the children were nonverbal and received speech therapy at least twice weekly. Some of the children enrolled as babies and will graduate to a center or a regular public or private school. The children do move from classroom to classroom as they progress through their education.

As previously described, the children within the study group included a diverse group of children. They varied in age as well as cognitive levels. The common factor of this study was that all of the children were nonverbal and therefore had difficulty communicating their wants and needs. It was this writer's responsibility to provide these children with the best possible education they could receive. Therefore, it was this writer's goal to help facilitate the children's language and effective communication skills.

The writer of this report has been teaching for five years and is currently teaching preschool handicapped children.

Previous experiences of this author have been teaching sexually and physically abused children and adolescents, learning disabled children, and developmentally delayed adults as well as teaching supplemental education. Current responsibilities of this writer include: writing and updating individual goals for the students Individualized Education Plan (IEP) or Family Support Plan (FSP), classroom scheduling, writing weekly lesson plans, assessing children, communicating daily with the parents, developing centers, and implementing therapy programs and instructional interactions with the children.

As stated previously, all of the children within the study group were nonverbal. The ages of the children indicated that the children should have begun experimenting with speech, but due to various developmental disabilities have not begun speaking. The children did not have an effective method of communication; therefore the problem addressed was the lack of a communication system for the children to use to express themselves. All of the children within the target group were developmentally delayed due to various neurological disorders. The following descriptions of each child demonstrates their speech delays.

The first child in the study group was diagnosed with Encephalopathy as an infant, therefore resulting in several

developmental disorders including Cerebral Palsy, seizure disorder, hypotonia, and a delay in speech development. Encephalopathy is a degenerative disease of the brain according to Dorland's Medical Dictionary (1988). The seizures this child had were infantile myoclonic spasms. These seizures were described as shocklike contractions of a muscle or group of muscles that appear synchronously or asynchronously, according to Dorland's Medical Dictionary. This child also had moderate to severe generalized hypotonia. Dorland's Medical Dictionary states that hypotonia is a condition of diminished tone of the muscles. A vision screening on this child showed no problems. The child tracked well in all directions. A hearing test eliminated any problems with the child's hearing. The child has a developmental delay, according to a neurologist's report, therefore had not started to speak. The fact that there is low muscle tone only contributed to the child's communication problems.

Three children in the target group were diagnosed with Down's Syndrome. This is a genetic disorder where there is an extra 21st chromosome. Physical features include enlarged head, flattened nose, mouth is often held open due to an enlarged tongue, small ears, hands that are short and broad, and the feet have a wide gap between the first and second toes. Physical and mental development are delayed according to The

Merck Manual (1992). All three of the children included in the group had a speech delay. They were at least two years of age and one was over three. One of the children, age two, had begun to experiment with language but only used the words "hi", "mama", and "bye". The three year old had a moderate to severe hearing loss and a vision problem. This child had undergone surgery to place tubes in her ears and then was fitted with hearing aids. Glasses were recently prescribed to correct esotropia. Dorland's Medical Dictionary (1988) stated that esotropia is a deviation of the visual axis of an eye toward that of the other eye. This particular child screamed when her needs were not being met. The last of the three children also screamed to get his needs met. He had no vision or hearing deficits.

The next child included in the target group was born with Congenital Adrenal Hyperplasia with Hypoadrenocorticalism. This disease primarily affects the kidney's ability to regulate various metabolic products (Merck Manual, 1992). This resulted in metabolic imbalances including hyponatremia, deficiency of sodium in the blood and hyperkalemia, high level of potassium in the blood (Dorland's Medical Dictionary, 1988). This ultimately resulted in a cardiac arrest. After resuscitation she was left with several developmental delays attributed to possible brain damage from the cardiac arrest.

Surgeries continue to correct several anatomical abnormalities due to her Congenital Adrenal Hyperplasia. It is projected that with these surgeries and corrective therapies, she will continue to develop with only slight delays. This child wore glasses to correct esotropia (discussed previously) and had no hearing defects. This child was experimenting with language but was not able to be understood, therefore could not easily get her needs met.

The last child included in the target group was a premature baby. He was three months premature and weighed only one pound and fifteen ounces upon birth. This child also had a shunt due to hydrocephalus. Hydrocephalus is commonly known as water on the brain (Dorland's Medical Dictionary, 1988). Due to the hydrocephalus this child was displaying signs of developmental delays. He had begun experimenting with speech, but used no words and only babbled. This child pointed to what he wanted and if he was not interpreted correctly, would have a temper tantrum. This child was two years of age, nonverbal and nonambulatory.

The writer of this paper presented the histories of the six children within the target group. Typically, children at the age of 18 months should speak an average of 10 words and by the age of two, typically developing children should be

producing two to three word sentences (The Merck Manual, 1992).

A teacher observation was conducted over a period of two weeks. The data was consolidated into charts found in Appendix A through D. Appendix A illustrates the children's ability to follow verbal directions given. Five activities, using the six children previously discussed, were observed for their ability to follow a direction the first time given. Physical handicaps were considered when evaluating how the child followed the direction given. The five activities included clean-up, line-up, sit on the bench, find picture on a mat, and go to the mat. The children were able to follow the direction given, 12 out of 30 times or 40% of the time. Within the target group were children that did not follow verbal directions. Some of the children were unable to see or hear within normal ranges. The children that did, appeared not to understand directions given. This lack of understanding of what was being asked resulted in frustrating situations for both the children and the people around them. Following directions was necessary to effectively participate in activities as well.

Transitioning from one activity to the next also generated difficulties. Some of the children would cry and refused to leave an activity. The child would have to be

carried and would cry until the next activity had started. Once the child realized what the activity was, the crying stopped and he participated to the best of his ability. Appendix B illustrates the children's understanding of a picture schedule. Five activities were examined and analyzed for the effectiveness of following a picture schedule. The children were able to follow the schedule, when accompanied by a picture symbol, 12 out of 30 times, or 40% of the time.

Active participation in activities was also a communication problem. The children did not have a way of telling the people around them when they had completed a task or needed more of something. This writer found that the children could not fully participate in an activity because they had no way of explaining what they liked or needed. Appendix C examines five activities where children utilized pictures of more, finished, help, or the name of the activity, to indicate what they needed and it enabled them to participate in the activity. The children used the picture symbols 9 out 30 times, or 30% of the time. The remaining 70% of the time the children cried or gestured when attempting to communicate and participate.

The final communication problem noted by this writer was for the children to effectively communicate their needs. The most common way of getting their needs met was to cry or

whine. The children also gestured towards a particular area of the room to indicate they wanted something. If the child was hungry and wanted more to eat, they could not tell anyone other than by crying. The methods these children were using were not effective for them. Appendix D outlines five activities where the children utilized a picture to communicate. The children used a picture symbol to alert a staff of their need 11 out of 30 times, or 37% of the time. Therefore, a communication program was implemented to help these children communicate more efficiently.

The children in the target group had their needs met by ineffective means such as: crying, screaming, pointing, and attempted speech. In this report, this writer implemented a program to help these children develop effective communication skills.

The goal for the target group was: The targeted preschool handicapped children will use augmentative and alternative forms of communication throughout the school day.

The outcome objectives were:

1) Over a period of 12 weeks of implementing augmentative and alternative communication, the target group will follow directions using picture symbols 75 percent of the time, as measured by a teacher-designed data collection sheet.

2) Over a period of 12 weeks of implementing augmentative and alternative communication, the target group will follow a picture schedule 80 percent of the time, as measured by a teacher-designed data collection sheet.

3) Over a period of 12 weeks of implementing augmentative and alternative communication, the target group will participate in five daily activities by using picture symbols 80 percent of the time, as measured by a teacher-designed data collection sheet.

4) Over a period of 12 weeks of implementing augmentative and alternative communication, the target group will indicate their needs by pointing to a picture symbol 80 percent of the time, as measured by a teacher-designed data collection sheet.

CHAPTER II

Research and Solution Strategy

Mirenda and Iacono (1990) believe that all people, no matter what disability they have or how severe it may be, attempt to communicate throughout their lives. Simply believing that communication will naturally occur is an untrue assumption. Persons with severe disabilities must be taught ways to communicate. Intervention efforts with persons who are mentally handicapped have focused on augmentative and alternative modes of communication (Snyder, Freeman-Lorentz, & McLaughlin, 1994). Augmentative communication methods have been shown to supplement and facilitate the development of speech, language, and communication skills, even in severely and profoundly handicapped children (Snyder, Freeman-Lorentz, & McLaughlin).

Communication intervention should begin at a young age according to Snyder, Freeman-Lorentz, & McLaughlin (1994). The development of a child's central nervous system is the most rapid between birth and age 5 or 6 (Kangas & Lloyd, 1988). This period is viewed as the most critical for language learning (Kangas & Lloyd). Communication does not begin or

end with language. From birth, children begin to communicate with the people around them. They do so by eye gaze, smiling, and nodding their heads. The children do these actions and their caretakers respond to them (Snyder, Freeman-Lorentz, & McLaughlin). When the children become older and their needs more complex, these methods are no longer effective for them to get their needs met. Another reason for early intervention, according to Kangas and Lloyd, is to help the child develop physical and manipulative skills so that the child may later access a communication device.

Children that are unable to communicate vocally need to be taught an alternative method of communication. Teaching communication skills in a structured environment is criticized (Mirenda & Iacono, 1990). Communication skills must be taught in a natural setting so that generalization of the skills is promoted. Incidental teaching is also of great importance (Mirenda & Iacono). The adult or teacher arranges the environment in order to increase chances for communication and therefore learning. Environmental arrangement provides the children with nonverbal cues for initiating communication (Kaiser, Ostrosky, & Albert, 1993). Choice making opportunities, classroom routine, and interesting materials support the student's learning to use communication in a wide range of areas (Kaiser, Ostrosky, & Albert).

Mirenda and Iacono (1990) also believe that communication skills can be taught through play. Picture symbols can be introduced within a play setting. The picture symbols give the child a way to communicate with others. Augmentative and alternative communication (AAC) is a technique that utilizes picture symbols to enhance communication (Baumgart, Johnson, & Helmstetter, 1990).

Augmentative and alternative communication systems are used for persons that cannot communicate vocally. These techniques are used most often with persons who experience a wide range of impairments. Some of the neurological dysfunctions these persons may display are cerebral palsy, mental retardation, autism, developmental verbal apraxia, and specific language disorders (Mirenda & Mathy-Laikko, 1989). Each dysfunction requires a different approach to using AAC. Each specific impairment does use a team approach to establishing and implementing an augmentative and alternative communication program (Mirenda & Mathy-Laikko). AAC is an accepted intervention for mentally handicapped individuals (Snyder, Freeman-Lorentz, & McLaughlin, 1994).

Augmentative and alternative communication (AAC) programs attempt to compensate for an expressive language deficit (Beukelman & Mirenda, 1992). Augmentative communication refers to the use of aids or techniques that

supplement verbal communication skills (Reichle, York, & Sigafoos, 1991). Alternative communication refers to the method of communication used by a person without vocal ability (Reichle, York, & Sigafoos). Within the AAC programs are picture symbols, aids, strategies, and techniques that enhance a child's communication skills. Symbols are referred to as a visual and auditory stimulant. An aid may be an adaptive device for a child who has poor muscle control. The strategy is the particular program that is used when implementing augmentative and alternative communication. The technique is the way that the picture symbols are arranged (Beukelman & Mirenda). Gestures, pointing, eye gaze, and attempts at speech are also included within alternative communication programs and should not be dismissed. The children should be encouraged to attempt language and use a picture symbol to help convey their message (Beukelman & Mirenda).

According to Beukelman and Mirenda (1992), there are four purposes to implementing an augmentative and alternative communication system. The first purpose is to enable speech impaired persons to convey their wants and needs. The second purpose is to transfer information. Social closeness is the third reason and social etiquette is the final reason. Persons

with a speech impairment have no effective means of carrying out these four communication purposes.

When looking at the first purpose, conveying a need or want, the picture symbols will be somewhat predictable. Therefore, when establishing a communication board the symbols will overlap for many different activities. Information transfer is more difficult. When a mentally handicapped person is attempting to tell someone pertinent information, the picture symbols will not be similar and will be different for most occasions. The social closeness also will not have a set of similar symbols. It is not the content of the pictures, but the method in which they are delivered in order to reach closeness with another person. Finally, social etiquette is having symbols such as "please" and "thank you". When using AAC the four reasons for implementing a communication system are intertwined (Beukelman & Mirenda, 1992).

The magic of augmentative and alternative communication lies within the picture symbols (Beukelman & Mirenda, 1992). A symbol is something that stands for something else. In other words, a symbol is used to represent a word or phrase to convey a meaning. These symbols are then organized in a format to help a handicapped person communicate their needs and become more socially accepted.

Only in the last 10 to 15 years has there been improvement in the methods of communication for the severely and profoundly mentally handicapped (Beukelman & Mirenda, 1992). Beukelman and Mirenda discuss the effectiveness of using routine situations to start alternative and augmentative communication. One example of a daily activity would be getting dressed. Start with the basic language it takes to perform this action and establish a communication board to encourage communication between the handicapped person and the person helping. Another way to implement AAC for mentally handicapped persons is to utilize a choice making board. Some examples are to choose what to drink or eat, what to watch on television, or what music to listen to. All of these situations can be turned into a communicating situation or language stimulation through the use of picture symbols (Beukelman & Mirenda, 1992).

A final way to increase communication for severely handicapped persons is to make a board for both the handicapped person and the person they are communicating with. By doing this, the handicapped person becomes involved in the situation and they have a way of making a response (Beukelman & Mirenda, 1992). Persons who use augmentative and alternative communication systems should be taught

within their natural environment (Von Tetzchner & Martinsen, 1992).

Children who learn to speak normally do so through their environment; therefore, children that do not acquire language as typically developing children do, should be taught alternative methods in their natural environment (Von Tetzchner & Martinsen, 1992). Some children with severe handicaps may need to use an augmentative and alternative communication system for the rest of their lives. These children typically do not learn to speak effectively (Reichle, York, & Sigafoos, 1991). According to Reichle, York, and Sigafoos children with multiple disabilities have an increased need for AAC.

Reichle, York, and Sigafoos (1991) express the importance of using many systems in combination. Reichle, York, and Sigafoos suggest using a combination of signs, pictures, and adaptive devices to increase communication skills, since children with handicaps need as many methods to communicate as possible.

According to Reichle, York, and Sigafoos, (1991) there are several questions a person needs to ask when establishing an augmentative and alternative communication system:

1. What reasons does the learner have to communicate?

2. How does the learner currently meet communicative obligations and opportunities?
3. What vocabulary is required to meet communicative obligations and opportunities?
4. Which communicative intents should be taught?
5. Which communicative mode(s) best matches the learner's abilities and needs?

Designing a graphic mode system:
1. Which symbols should be used?
2. How large should the symbols be?
3. How will the symbols by selected?
4. How will the symbols by displayed?

Designing a gestural mode system:
1. What vocabulary should be used?
2. What are the motoric considerations?

Two other very important factors to consider when establishing AAC are the cognitive levels of the children and whether the use of verbal communication has been sufficiently explored (Reichle, York, & Sigafoos, 1991). It is believed that a child needs to be functioning cognitively at a 12-month-old level in order to communicate in an effective manner, and therefore understand an alternative system (Reichle, York, & Sigafoos). One of the criteria for sufficiently exploring verbal communication is that the children can effectively request and reject objects they want or need. Also, the child needs to respond to questions that are asked and be able to be understood (Reichle, York, & Sigafoos).

Another prerequisite skill for an AAC system to be implemented is the understanding of the spoken language (Romski & Sevcik, 1988). It was believed that persons must understand what is being said to them before they could effectively use an AAC system. Romski and Sevcik report that severely mentally handicapped persons with no speech, were able to request desired foods and objects through the use of abstract graphic symbols. This fact would then rule out the prerequisite skill of understanding the spoken language.

Reichle, York, and Sigafoos (1991) stress that by implementing a gestural or graphic system, vocal skills are not decreased. Instead the children are still encouraged to use their voices, but in conjunction with a pictorial or graphic system. By teaching children to use picture symbols, the caretakers or teachers may actually have a facilitating effect on speech (Kangas & Lloyd, 1988). By implementing an AAC program in conjunction with speech therapy, the frustration of the children can be decreased (Mirenda & Mathy-Laikko, 1989).

One of the problems that occurs when looking at a disabled child's cognitive ability is how to effectively assess the level of functioning. Goossens' (1989, p.14) states, "We can't determine the child's true level of functioning because of the child's lack of reliable means of communication." Goossens' (1989, p. 14) further states, "We can't plan viable

communication intervention because of the lack of data regarding the child's true level of functioning." These statements place educators in a compromising position. When faced with this situation, educators typically implement AAC for a period of time. This allows the child to acquire communication skills and therefore can be evaluated. A better understanding of the child's cognitive level is then available (Goossens'). At this time a more viable AAC system can be implemented to further the child's communication skills.

As a child begins to mature and grow, the AAC system that is in place will be outgrown. The handicapped persons will need their AAC system to grow as they grow (Stuart, 1993). As the world becomes more technological, so has AAC. Computers, adaptive switches, and voice output devices can be utilized to help a noncommunicative person adapt (Alm, 1993).

Augmentative and alternative communication is a system that can effectively be used to help handicapped persons communicate. Many new advances are being made in the area of computers for the handicapped. AAC is an effective form of communication for handicapped persons. As stated earlier, all the children within this target group were nonverbal handicapped children, who did not have an effective form of communication. Therefore, this writer implemented an

augmentative and alternative communication system for the children to effectively communicate.

For this study the picture symbols used were from The Picture Communication Symbols Book I, II, and III, by Mayer-Johnson (1981, 1985, 1992). The picture symbols were pictures and words combined in a two-by-two square that symbolized a particular noun, verb, leisure activity, social activity, people, descriptive, and miscellaneous activities. Also communication boards developed by Goossens', Crain, and Elder (1992) were used. Communication boards gave the children a way of participating in any given activity. The communication boards also utilized the symbols found in the Mayer-Johnson picture symbol books. Goossens', Crain, and Elder have organized them in a particular format to aid language stimulation. This book is available to educators for reproduction in a classroom setting.

CHAPTER III

Method

After closely examining the literature pertaining to augmentative and alternative communication systems, this writer decided to forego the assessment. The reason for this was that all of the children were nonverbal and an accurate cognitive level was unattainable. This writer began preparing for AAC by labeling the classroom with picture symbols to familiarize the children with this system. The pictures were color coded as to Goossens', Crain, and Elder (1994): nouns - yellow, verbs - pink, prepositions - green, social/self-referent - orange, and adverbs/adjectives - blue.

The next step was to assemble choice making boards. The choice board was a piece of cardboard wrapped with loop fabric. Symbols of cause and effect toys and switch operated toys were used for this activity as well as any other table top toy. Velcro was attached to the back of each picture symbol. The children pulled off or placed their hand on the one they wanted to play with. Each child then played with the toy of his or her choice for four minutes. A timer was set and when the time was up, each child chose a new toy by once again using the picture symbols and choice board.

The third step in preparing the classroom was to create communication boards for at least five activities. The five activities included: bubbles, blocks, story time, circle time, and meal time. Each board contained picture symbols that related to that activity. The board's consisted of 16 picture symbols arranged according to Goossens', Crain, and Elder (1994). Each of the 16 symbols were colored according to the color chart previously listed and were then cut apart and pasted to a file folder. The folder was laminated and velcro was placed on the back of the communication board. Uncolored copies of these five boards can be found in Appendix E-I. This writer wore the communication board on an apron (that has loop fabric sewn to it) and conducted each activity while pointing to the picture symbols as each word was spoken.

A communication board for each child were also used. The board contained four symbols. The picture symbols for more, help, and finished were used on all the communication boards that the children used. The fourth symbol was an extension of the activity at hand. A sample communication board for bubbles can be found in Appendix J. A problem was encountered when the children were introduced to their communication board. The children did not understand their use and viewed them as a toy. Some were thrown on the floor while others were used as a chew toy. A way of securing these

for functional use is still being explored; therefore, child communication boards were not used for this study.

Another step in preparing the classroom was to make a picture schedule to correspond with the daily activities. The schedule included but was not limited to: bus, play time, circle time, outside play, lunch time, rest time, and snack time. The final two steps this writer took to prepare the classroom were to place symbols of *finished* and *help* on the table where each child sits. These were taped to the table so that the children would be able to place their hand on the one they were using to express themselves. The picture symbol for *more* was added later in the twelve weeks.

Finally, a picture symbol belt was constructed for each staff member to wear. The symbols on the belt included: like, hug, good job, more, please, finished, help, no, please be quiet, and stop. The belt was used in conjunction with verbalizing by the staff to communicate their needs to the children as well as the children having access to more symbols to communicate their needs. All of the preceding procedures were in place the first week of implementation and were used to develop a baseline of knowledge.

To fully implement an AAC system into this preschool handicapped classroom, all of the preceding elements needed to be in place and understood by all classroom staff and

administration. The first step in implementation was to go over the picture schedule every morning. This was done at all transition times. When an activity was completed, a staff member drew the attention of the children to the schedule and said, " X activity is over and now it is time for Y activity." Over the twelve week period, this procedure was done every time an activity was completed.

Also during transition times, simple one step directions were given. This instruction was accompanied by a picture symbol. If the instruction was to find their chair, then a picture of *chair* accompanied the direction. Chairs within the classroom were also labeled with the same picture of chair. This also was done everyday of the twelve week implementation period. Furthermore, the children's needs were met mainly by crying or whining. When this occurred the child was asked to stop and show the staff member what he or she wanted. They were to then take the belt and show the staff or use one of the various symbols in the room to indicate their need. This was an ongoing procedure throughout the twelve weeks of implementation.

The final implementation step was for the staff in the classroom to wear an apron with a communication board attached that corresponded to the activity at hand. The staff member used this board when speaking and pointed to the

corresponding symbols to encourage child participation. The children were allowed to use the staff member's board to indicate what they would like from that activity.

Augmentative and alternative communication systems are a continuous process. Therefore this writer chose to implement these four steps the first week. The procedures for the remaining eleven weeks follows. Many symbols were in place and served as a baseline for understanding AAC. Because augmentative and alternative communication is an ongoing process, communication boards were continually developed for all activities within the classroom and a few for outside the classroom. These were not used for the purpose of the study, but were gradually introduced for individual needs of the children and their implementation schedule will be discussed.

Within the first month of implementing AAC, the children had been exposed to five communication boards made to Goossens', Crain, and Elder's (1994) specifications. These were circle time, bubbles, blocks, story time, and meal time. The classroom staff attached the boards to their aprons, as previously discussed, and communicated through the boards. The children did not have their individual boards yet, but they were able to use the boards of the staff. By the end of week two, the children were pointing to various pictures on the facilitator's board during circle time and story time. There

seemed to be no pattern of symbols that the children used on the facilitator's board. They were randomly choosing pictures without any meaning behind them.

Week three brought new challenges to the program. The children's communication boards were introduced again. The boards were placed in front of the children on the table for the activity at hand. Once again the children threw them on the floor. It appeared that the these children were not yet ready for this approach. A possible solution to this problem will be discussed in Chapter V. During week three, a communication board for art was introduced. Once again the staff wore the art communication board on their apron and the children were able to use symbols on it as well as *help* and *finished* on the table.

The next communication boards that were introduced were for beads and shape sorter. Also introduced during the fourth week were symbols for animals and body parts. These were used with children that had goals pertaining to identifying animals and body parts. The picture symbols were paired with the spoken word as well as pointing to a body part or an animal. The individual symbols were only used for a select group of children and they were utilized in a one to one fashion.

During the following two weeks, no new communication boards were introduced. The children were given a chance to adjust to these symbols and communication boards and the staff were given a chance to construct more boards. These two weeks gave staff an opportunity to implement information gained from an inservice on visually engineering the classroom. Through observing the children with the boards that were in place and analyzing the daily schedule, more boards were made to fit into the present curriculum. Also through the knowledge gained at the inservice, more effective ways of using AAC within circle time were added. Choice boards were implemented within circle time by week seven. The songs were now represented by picture symbols. Also, story time was changed to incorporate teacher made books that contained picture symbols. No other communication boards were introduced during week seven.

By the eighth week the children seemed to understand the symbols for more, help, and finished. Some of the children were pairing the word with the sign for the word instead of using the picture symbol. A communication board for nap time was introduced during week eight.

Housekeeping communication boards were introduced during week nine. These boards contained symbols for fruits and vegetables. Also on these boards were the symbols for in,

out, and basket. This enabled the children to play an interactive game with the fruits and vegetables. This was a difficult concept for these children. Due to the amount of symbols around the room and the number of communication boards being used, weeks ten, eleven, and twelve were used for observing the children and gathering final data. No more communication boards were introduced to the children.

Augmentative and alternative communication is a program that requires constant observation and changes. The children's systems require individual tailoring to meet their needs. This requires dedicated and persistent staff to constantly be aware of the children and their communication needs. Suggestions will be made is Chapter V.

CHAPTER IV

Results

The evaluation tools used within this practicum were teacher-designed data collection sheets. The baseline data from each collection sheet can been found in Appendices A-D. The same data collection sheets were used to evaluate the success of the augmentative and alternative communication system implemented. These can be found in Appendices K-N. The only difference between the collection sheets is that picture symbols were used in evaluating communication skills instead of random vocalizations. No formal test was given to evaluate the system.

Four data collection sheets were constructed. One measures how well the children followed directions using a picture symbol. The next data collection sheet displays how the children follow a picture schedule. The third data collection sheet displays the children's use of picture symbols to communicate within a given activity. The final measurement displays how the children get their needs met. The children needed to use a picture symbol in combination with gestures and pointing to successfully meet the criteria for post-evaluation.

Once again, the only difference between the baseline data sheets and the data sheets used for evaluation was the criteria. When the baseline data was collected the children were given credit for attempted words and gestures. The children needed to use a picture symbol in conjunction with a gesture or attempt at speech to receive credit for adequately communicating after the twelve week implementation period.

After implementing augmentative and alternative communication for twelve weeks the children were evaluated for the way in which they were communicating. Upon evaluation, the children were found to follow directions 63% of the time, when the direction was accompanied by a picture symbol. Pre-evaluation showed the children following directions 40% of the time. The directions used for measurement purposes were clean-up, line-up, sit on the bench, find your picture on the mat, and go to your mat. A chart containing these results can be found in Appendix K.

The next area of measurement involved following a picture schedule. The children were verbally told the next activity and a symbol was produced from the picture schedule. As shown in Appendix L, the children moved to the next activity with no transition difficulties 24 out of 30 times or 80% of the time. Pre-evaluation showed the children able to

follow the schedule 40% of the time. The children successfully met this objective.

The third area of evaluation dealt with participation within an activity. The children were to use their own communication board, but as stated earlier problems were encountered at this point. The only symbols the children had direct access to were *help* and *finished*. These were taped to the table at the child's seat. For evaluation purposes bubbles, story time, and meal time were conducted at the children's seats. Blocks and circle time were conducted in groups on the floor. The children only had access to *finished* and *help* for three of the presented activities. For blocks and circle time the children were able to use the facilitator's board for other communication symbols. *Finished* and *help* were the two symbols used to evaluate participation in an activity. The children used these two symbols 10 out of 30 times or 33%, as seen in Appendix M. When evaluated before implementation the children were using symbols 30% of the time.

The last area evaluated was how the children's needs were met. The children were effectively getting their needs met 37% of the time before implementation of AAC. Following implementation the children were using picture symbols to get what they wanted 63% of the time, as shown in Appendix N. Overall, the children's communication skills improved for the

situations where AAC was implemented and evaluated. Only one objective was met.

CHAPTER V

Recommendations

Upon examining some of the problems encountered with AAC, this writer developed some possible solutions. One of the main problems was the children's communication boards. One possible solutions includes: purchasing a Wolf for each child to use. This device would give a voice output when the child pressed the appropriate symbol. Another solution is a plastic cover for the table. The staff could place each child's communication board on the table and then cover the table with a plastic sheet. The children then would not be able to throw the communication sheets. The final suggestion for the children's boards would be to tape the basic pictures to the table where each child sits or to the child's wheelchair tray. Switches may also serve a function for more physically impaired children.

AAC is a complex program that requires a dedicated and observant staff. The staff involved must constantly evaluate the program's effectiveness and determine changes that need to be made. Also, individual needs must continue to be met. AAC also continually changes as the children progress in their communication skills. AAC is not a program to be entered into

without total commitment from teachers, assistants, parents, and support staff.

Follow-on strategies have begun for each of the nine classrooms within this preschool setting. The administration is very enthusiastic about AAC and very supportive of the staff that are beginning the implementation process. This writer has extended help and support to all staff at this setting in implementing augmentative and alternative communication. It is this writer's hope that all the classrooms will see the benefit of a system that gives children a way to communicate with the people around them, therefore allowing them to become one step closer to independence.

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APPENDICES

Appendix A

Following Directions

	Clean-up	Line-up	Sit on bench	Find picture on mat	Go to mat
A				X	
B		X	X		X
C	X	X		X	
D				X	
E		X		X	
F		X			X

X = followed verbal direction first time given. All the children are able to follow direction without physical limitation.

Appendix B

Picture Schedule

	Play time	Outdoor play	Lunch	Nap	Center time
A	X	X			
B	X	X			
C	X	X	X		
D				X	
E	X		X	X	
F					X

X = picture of activity is presented with verbal cue. Children respond by going to that area of the room.

Appendix C

Participate in Activity

	Bubbles	Blocks	Story time	Circle time	Meal time
A	X		X	X	X
B		X			
C	X			X	
D					X
E				X	
F					

X= child pointing to picture of More, Finished, Help, or the name of the activity.

Appendix D

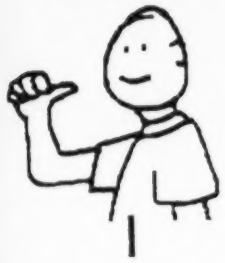
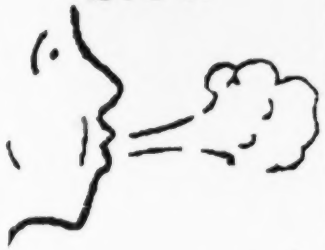
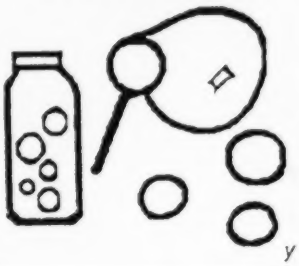
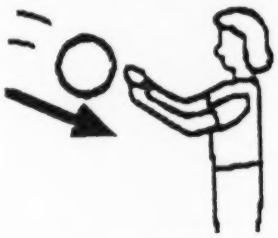
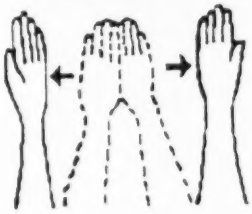
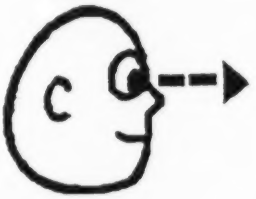
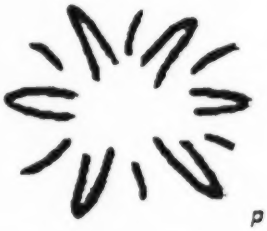
Needs Met

	Art	Outdoor play	Circle time	Lunch time	Table time
A	X		X	X	
B			X		
C	X				
D			X		
E			X	X	X
F		X		X	

X = child uses picture symbol to alert staff of a want or a need.

Bubble Communication Board

Bubbles - 16

let me  o	blow  p	more again b	bubbles  y
no don't not.	catch  p	all gone b	in g
uh oh o	open  p	little b	big b
your turn o	look  see p	pop  p	yuckie bad b

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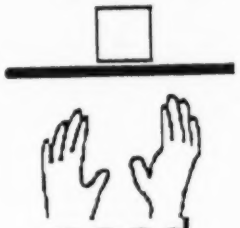
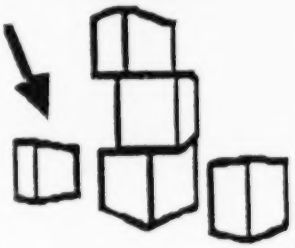
Blocks Communication Board

Blocks - 16

let me / I o	want / need  p	more / again b	block  y
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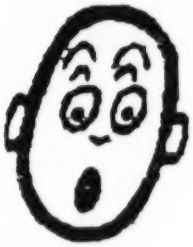
uh oh  o	knock p	careful b	up g
your turn o	help p	fall p	down g

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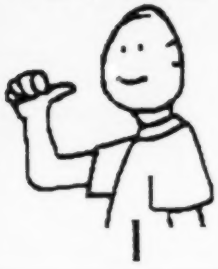
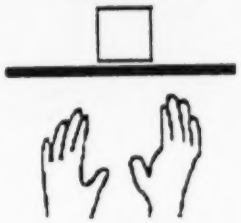
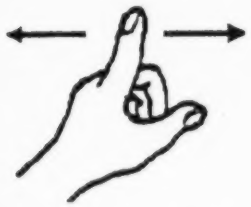
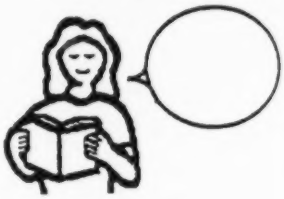
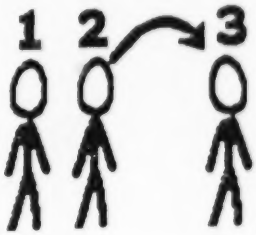
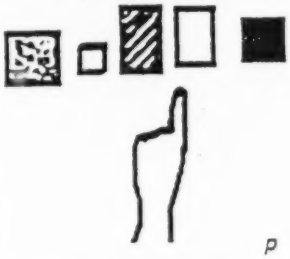
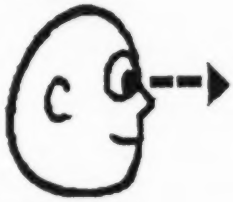
Story Time Communication Board

Story Time - 16

let me  I o	want  need p	more again another b	story book y
no  d~n't not o	read  tell p	finished b	next  b
uh oh o	pick  p	good b	turn the page p
what o	look  see p	listen p	like p

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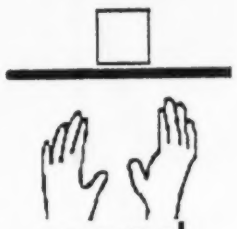
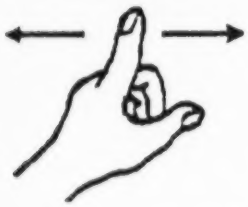
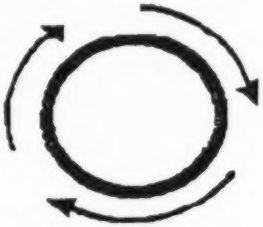
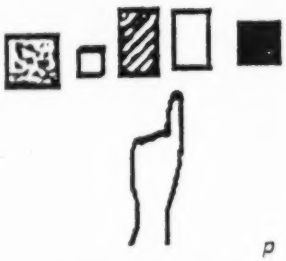
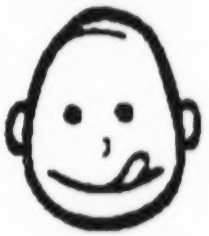
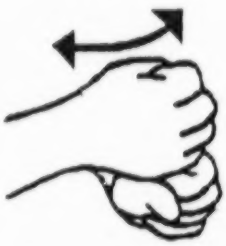
Circle Time Communication Board

Music Time ...

Choosing Songs - 16

let me I o	want  need p	more again b	song music y
no  c.on't not o	turn  p	finished done b	instruments y
uh oh o	pick  p	good  b	loud b
what o	who p	make  p	sing p

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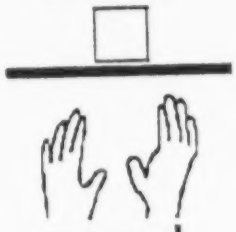
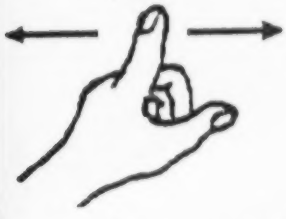
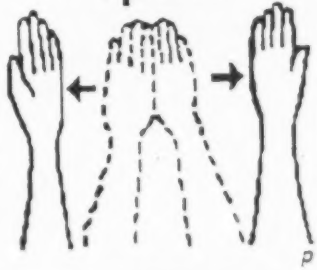
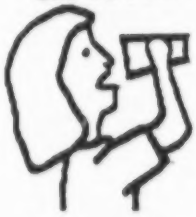
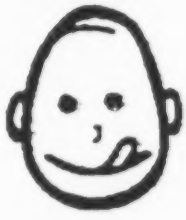
Meal Time Communication Board

Mealtime - 16

let me I	want  need	more again	glass
no  can't not	pour	finished done	spoon
uh oh	open 	all gone	napkin
eat hungry	drink  thirsty	good 	yuckie bad

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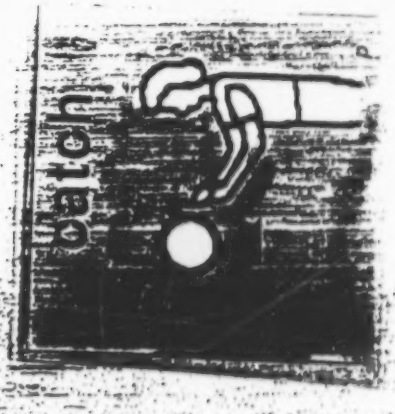
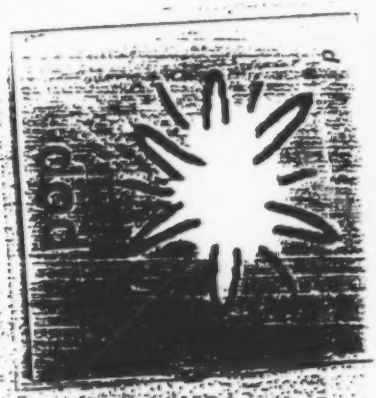
Child's Communication Board - Bubbles





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Appendix K

Following Directions Post-Evaluation

	Clean-up	Line-up	Sit on bench	Find picture on mat	Go to mat
A					
B	X	X	X	X	
C		X	X	X	X
D			X	X	
E	X	X	X	X	X
F		X	X	X	X

X = followed verbal direction when accompanied by a picture symbol. All children are able to follow direction without physical limitation.

Appendix L

Picture Schedule Post-Evaluation

	Play time	Outdoor	Lunch	Nap	Center time
A	X	X	X		
B	X	X	X		X
C	X	X	X	X	X
D	X			X	X
E	X	X	X	X	X
F	X	X	X		X

X = Picture of activity is presented with verbal cue. Children repond by going to that area of the room without transitional problems.

Appendix M

Participate in Activity Post-evaluation

	Bubbles	Blocks	Story	Circle	Meal
A	X		X	X	X
B		X			
C					
D					
E	X		X	X	
F	X				X

X = child pointing to picture of help or finished.

Appendix N

Needs Met Post-evaluation

	Art	Outdoor	Circle	Lunch	Table
A	X		X	X	X
B			X	X	
C	X		X		X
D			X		X
E	X	X	X	X	X
F		X	X	X	

X = child uses picture symbol to alert staff of a want or a need through the use of staff belt or staff communication board.

NOVA SOUTHEASTERN UNIVERSITY

Practicum Proposal Evaluation Checklist

Name Lora Kaiser MS (MS/EdS) VE (Major) Ft. Lauderdale (Site)

CHAPTER I. *Background*
1. The practicum setting (facility and community) has been described. ___Yes ___No ___Unclear
2. The writer's assigned role at the setting has been explained. ___Yes ___No ___Unclear
3. The specific program or classroom has been clearly described. ___Yes ___No ___Unclear

CHAPTER II. *Problem*
1. The problem is identified in operational terms. ___Yes ___No ___Unclear
2. The targeted group is clearly identified, and statistics for each member are provided. ___Yes ___No ___Unclear
3. Probable causes and the effects of the problem have been discussed. ___Yes ___No ___Unclear
4. Currently used strategies related to this problem have been explained. ___Yes ___No ___Unclear
5. The discrepancy between "what is" and "what should be" has been presented. ___Yes ___No ___Unclear

CHAPTER III. *Objectives*
1. Objectives are stated in measurable behavioral terms. ___Yes ___No ___Unclear
2. Each objective includes the four required elements. ___Yes ___No ___Unclear
3. Process/product objectives include identification of product evaluation. ___Yes ___No ___Unclear

CHAPTER IV. *Research*
1. **Solutions** to related problems in other settings have been examined through discussion of the literature. ___Yes ___No ___Unclear
2. A **theoretical or philosophical frame of reference** for the problem and its proposed solution have been provided. ___Yes ___No ___Unclear

Planned Strategy
3. The strategy appears soundly based on theory and research reviewed herein. ___Yes ___No ___Unclear
4. The writer has described the selected strategies in relation to the reviewed literature. ___Yes ___No ___Unclear

CHAPTER V. *Implementation Plan*
1. The writer's implementation tasks are identified and explained. ___Yes ___No ___Unclear
2. Target group activities are identified in appropriate sequence. ___Yes ___No ___Unclear
3. All necessary training or orientation, monitoring, and materials are identified with a description of each activity. ___Yes ___No ___Unclear

CHAPTER VI. *Evaluation Plan*
1. Evaluation instruments, data collection, and their applications are presented and explained in terms of the project objectives. ___Yes ___No ___Unclear
2. Teacher-made evaluation instruments have been placed in the Appendixes. ___Yes ___No ___Unclear

Writing
1. Writing style is orderly and clear. ___Yes ___No ___Unclear
2. Citations are accurately documented. ___Yes ___No ___Unclear
3. Proofreading—grammar and syntax—are evident. ___Yes ___No ___Unclear
4. *Form and Style Manual for GEM Practicums* has been followed. ___Yes ___No ___Unclear
5. Copyright laws have been observed. ___Yes ___No ___Unclear

☐ Computer Search Completed Date_____

☐ Implementation approved ☐ Implementation pending Date_____

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Advisor Signature_____ Date_____

6/95